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Research Memorandum 68-11

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ARMY PERSONNEL SYSTEM ANALYSES

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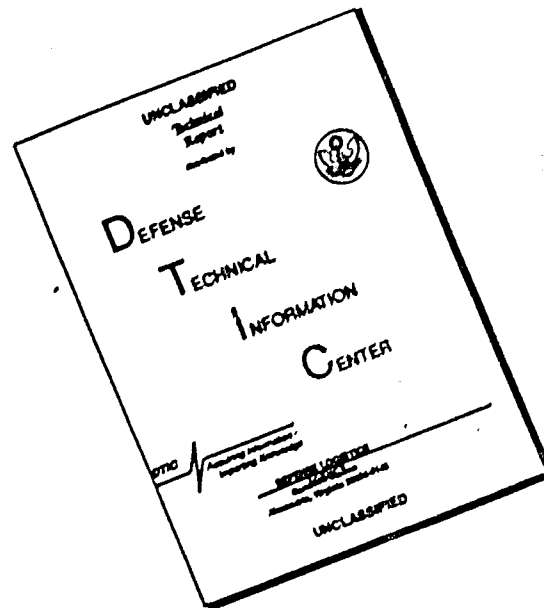
U. S. Army
Behavioral Science Research Laboratory

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Research Laboratory

(11) Dec ~~68~~ 68

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ARMY PERSONNEL SYSTEM ANALYSES

SCOPE OF THE PRESENT STUDY

The SIMPO-I research Work Unit is devoted to the development of simulation techniques applicable to personnel systems. Development includes the implementation of a model simulation system and the accompanying library of computer routines for predicting and assessing the total result of policy changes. A special subtask, SIMPO-Ia, Operational Analysis of Personnel Subsystem, has been established to accomplish systems analysis and flow charting of the Army personnel subsystem. The analysis is designed to identify points at which personnel decisions and actions are accomplished, to determine how controls are established, and to define current rules for effecting such actions.

The present Research Memorandum covers three preliminary investigations under this subtask: the identification of efforts of other Army elements--chiefly performed under contract--which can provide information relevant to SIMPO objectives; a cursory survey of the Armor Branch personnel system; and a more detailed analysis of the Army aviation personnel system. The latter study forms the main portion of the present publication. A fourth investigation, covering the systematic sequence in accessioning Army recruits and inductees, will be the subject of a separate publication.

RELATED RESEARCH EFFORTS BY OTHER AGENCIES

Twenty projects being conducted under contract or in-house by other agencies were identified as having relevance to the SIMPO-I effort. Those concerned with the automation of an operation are related to SIMPO in three ways: 1) Automation will facilitate data summarization and reduction which in turn may provide operational parameters for SIMPO-I programs. 2) To the extent that these projects implement policies which may be modified, as in the introduction of optimization in assigning men to jobs, relevant policies must be analyzed and represented in the model. 3) Computerization of policies necessitates the explicit formulation of policy and hence makes the system analysis required for design of simulation models easier. Other projects examined are for the development of system projections that closely resemble simulation models. As the results of these efforts become available, the products will be evaluated and those which are appropriate will be modified for inclusion in the SIMPO-I library. A list of the relevant projects and of the agencies concerned constitutes Appendix A.

SURVEY OF THE ARMOR BRANCH

The survey of the Armor Branch dealt chiefly with sequences in the assignment of officers. A flow chart (Appendix B) was prepared which will be of some aid in designing simulations of the Armor personnel system.

ANALYSIS OF ARMY AVIATION PERSONNEL SYSTEM

The Army mans both fixed-wing planes and rotary-winged (helicopter) aircraft. Selection requirements, training, and duty assignments for the two types of aircraft differ somewhat. Some cross-training for Army aviators is both necessary and desirable to provide personnel dual qualified for assignments with either requirement. Further complicating the system is the fact that requirements are expressed in terms of commissioned officers and warrant officers. Warrant officers directly appointed to the aviation system are trained with commissioned officers.

PROCUREMENT OF ARMY AVIATION PERSONNEL

Most personnel, enlisted and commissioned, in aviation training are volunteers. Of those receiving officer aviation training, 80 percent are graduates of officer candidate schools, 15 percent are from ROTC, 2 percent are commissioned officers entering the aviation system directly, and a small number are graduates of the U. S. Military Academy.

The following prerequisites to assignment or training are condensed from Army Regulations (1) (2) (3).

Prerequisites for 1st and 2d lieutenants and warrant officers directly assigned to aviation duty:

Less than 30 years of age

Qualified on Flight Aptitude Selection Tests (FAST-OB)¹

Be in branch with authorized aviators

Have completed basic career branch course and, if RA, one year of troop duty

Must enter flight training prior to completion of 42 months of active commissioned service

¹ See Reference (4) for description of FAST battery.

Prerequisites for captains and above:

Since officers in these grades have fewer useful years of service remaining before retirement, they have a selection priority lower than do officers of lower grade or enlisted applicants. Added prerequisites are:

More than three years before mandatory retirement

Command experience commensurate with grade

Completion of Command and General Staff or Armed Forces Staff College course

Prerequisites for enlisted personnel

Long tour overseas personnel are eligible to begin the program after one-half the normal tour length. Short tour personnel must complete the entire tour before becoming eligible. Established prerequisites are:

Completion of basic training

General Technical Aptitude Area score of 110 or higher

Qualified on Flight Aptitude Selection Tests, Warrant Officer Candidate Battery (FAST-WOCB)

More than two years before ETS at time of school order or must extend

High school graduate

Less than 30 years old

Weigh less than 200 pounds

Must agree to serve on active duty for three years following successful completion of course

No military or civil convictions

CATEGORIES OF ASSIGNMENT

Aviation Duty (Category A). All assignments which require ability to fly aircraft. Includes aviation training base and student positions.

Career Development (Category B). Branch material, branch immaterial, and student positions which do not require ability to fly an aircraft. Branch material assignments for grade up to major are to command and staff positions at brigade or lower echelon; for lieutenant colonels and colonels, assignments are at division or lower level. Student assignments are to any school (other than aviation school) which they attend in permanent change of station (PCS) status.

Other assignments (Category C). Most aviators in assignments other than Categories A and B are indefinitely suspended from flying status.

Volunteer Indefinite. Career officers who must themselves initiate request for release from active duty after their three years of obligated service.

OBV. Officers with three-year obligation unless they request extension or Volunteer Indefinite or Regular Army status. Otherwise, they are automatically released.

SERVICE OBLIGATION

All commissioned volunteers are obligated for at least three years of active duty following graduation from initial flight training, except for the AROTC Flight Training Program graduates who entered the program before September 1965 (their three-year obligation included initial flight training).

Most courses following initial entry training obligate individuals for one year of service beyond the date of completion of the course. A few transition courses have no obligation; the Safety and Test Pilot courses require two and four years respectively.

The RA and career reserve officers are Volunteer Indefinite. All other commissioned and warrant officers are OBV-3. Obligated service incurred through school attendance does not extend OBV-3 personnel beyond their three-year date. AROTC Flight Training Program graduates get flight training immediately after the branch basic course. Applicants selected for the aviator program are given training in order of ranking on FAST tests. Enlisted applicants are promoted to E-5 at the beginning of training. BESRL receives complete class roster with name, grade, and course grade or reason for dismissal.

Most warrant officer aviators selected are OBV-3. The present retention rate at the end of the three years is 30 percent. Dual qualification training is given primarily to meet the needs of the Army on the basis of seniority and manner of performance as determined from efficiency reports. Number of years until mandatory retirement is also considered. Most warrant officer aviators now enrolled in dual qualification courses have seven or eight years of service.

AVIATION TRAINING

The following types of training are distinguished:

Initial Entry. Undergraduate course in either fixed-wing or rotary-wing aircraft. Graduates are designated aviators and assigned appropriate military occupational specialties (MOS). The MOS for Army aviator officers, commissioned and warrant, are listed in Figure 1.

Qualification Training. Graduate course in which formally qualified aviators are trained in handling new aircraft or in safety techniques. Provides dual qualification training--fixed-wing aviators in rotary-wing aircraft and vice versa. Almost all colonels and lieutenant colonels now in staff and command positions are dual qualified. However, aviators with three-year service obligation who have not requested Volunteer Indefinite status are not given dual qualification training.

Transition Training. Courses qualifying aviators in handling new aircraft. These courses can be given personnel of any grade after any number of years of service; however, it is desirable to provide such training to personnel in the lower grades and early in service when more years of usefulness to the Army remain.

Turnaround Training. Transition or dual qualification training which is given immediately after the individual has completed initial entry training.

Cross Training. Training to qualify personnel in a second MOS. For aviators, cross training is equivalent to dual qualification training.

Instrument Qualification Training. Training to enable an aviator to fly aircraft by instrument. There is one course for fixed-wing aircraft and one for rotary-wing.

Most Aviation School courses are held at Fort Rucker, Alabama. Some courses are also held at Fort Stewart, Fort Benning, Fort Hunter, Fort Ord, Fort Huachuca, the San Diego Naval Air Station, and the Navy Test Center at Patuxent River, Maryland.

A chart showing location, length of course, prerequisites, and service obligation is presented as Table 1. All formal graduate training school courses for aviators are listed in OPD-OPXAA Disposition Form, Subject: Aviation Qualification Schools List, 1 March 1967. For each of the 25 courses listed, the following information is given: title of course, course number, location, length, prerequisites, and service obligation incurred. For the current period, class number, reporting date, closing date, and quotas are supplied. Most of the courses listed are also found in the Formal Schools Catalog (DA Pamphlet 350-10). The catalog also shows initial entry courses with the MOS which results from course completion and a brief statement of the purpose and scope of each course.

Training Prerequisites. The courses vary widely in the complexity of prerequisites. Transition courses within either fixed-wing or rotary-wing aviation have relatively simple entry requirements. For instrument flight examiner or test pilot courses, however, more stringent prerequisites are imposed. The course prerequisites shown in Table 1 are minimum qualifications recommended by the schools. In the case of turnaround students, the flying hours requirement is waived.

Commissioned Officer Aviator MOS

1980 - Fixed-Wing Aviator
1981 - Rotary-Wing Aviator
1982 - Airfield Operations Officer
1983 - Aviator Unit Commander
1984 - Fixed-Wing Instrument Flight Examiner
1985 - Rotary Wing Instrument Flight Examiner
1986 - Test Pilot
2518 - Aviation Staff Officer
7423 - Aviation Safety Officer

Warrant Officer Aviator MOS

061B - Airplane Pilot, Single Engine
061C - Airplane Pilot, Multi-Engine
062B - Helicopter Pilot, Utility and Light Cargo Single Rotor
062C - Helicopter Pilot, Utility and Light Cargo Tandem Rotor
062D - Helicopter Pilot, Medium Transport
671C - Aircraft Repair Technician, Rated

If there is a commissioned officer requirement for a non-aviator MOS skill but the position also requires a currently rated aviator, the prefix 6 can be added to commissioned officer MOS. Special qualifications for warrant officer MOS are designated by adding a suffix digit - 6 for Instrument Flight Examiner, - 8 for Instructor.

Figure 1. List of Army Aviation MOS for Officers and Warrant officers.

Duration of Training. Most qualification courses run from three to eight weeks. A notable exception is the U. S. Naval Test Pilot School, which runs nine months. The rotary-to-fixed dual qualification course is two months in length, and fixed-to-rotary is three months. Courses longer than 30 weeks are attended in Permanent Change of Station (PCS) status; those of shorter duration are Temporary Duty assignments (TDY).

Quotas. The Assistant Chief of Staff for Force Development (ACSFOR) has responsibility for setting annual school quotas and coordinating them with the Aviation School.

FILLING OVERSEAS REQUIREMENTS

Monthly requisitions are received from all areas except Europe. Normally, there is a three-year tour in Europe, but current policies and Vietnam requirements dictate a tour of from 14 to 18 months. Vietnam, Thailand, and Korea are at present the only short-tour areas. There are, however, other areas which become short tour if the aviator does not elect to take his dependents.

The European Commander does not know exactly how long his men will be with him. He cannot, therefore, know exactly when to requisition replacements. This problem has led to the establishment of European branch manning levels and the requirement that a branch requisition a replacement for each man transferred to another duty station. The branches operate with six to nine months' lead time for assigning replacement to Europe. That is, the requisition for an aviator must be sent to the Officer Personnel Executive for Army Aviation (OPXAA) six to nine months before the date the aviator is required to report. Other than in the Table of Organization and Equipment (TOE) and the Table of Distribution (TD), qualifications for each duty position are not specified in Europe as they are in Vietnam.

THE FAR EAST

Volunteers comprise a negligible percentage of total assignments in Vietnam. Some men volunteer to change the timing of their rotation. For example, a man scheduled to go to Vietnam after his next tour may volunteer to go earlier instead.

Lead time for Vietnam requisitions is 11 months. It takes OPXAA about one month to assign personnel to a branch (in other words, to validate a requisition). The process used by OPXAA consists of the following steps:

1. Compare requisition with number authorized to insure that the total requisitioned within a year does not exceed the number authorized.
2. Determine excess or deficiency.

3. Compare requisition with authorization with respect to aircraft qualification and warrant officer/officer ratio.

4. Add or delete requisitions.

5. Distribute requisitions among branches.

6. Punch code for branch to which assigned on each requisition card.

7. Print monthly and yearly branch and overall summaries and distribute to branches. Branch summaries are sorted by aircraft qualification.

Warrant Officer/Officer Ratio. Primary factors in the distribution of requisitions are aircraft qualification and the world-wide desired warrant officer/officer ratio of 50/50. For Vietnam, however, the objective is a 60/40 ratio. To maintain the prescribed ratio, OPXAA has the option of substituting warrant officers for commissioned officers and vice versa

OPXAA distributes each aircraft qualification group separately. Each branch receives the same proportion of requisitions as the ratio of its qualified aviators to the total number of available aviators having the appropriate qualification. Over a period of time, each branch receives its proportionate share of requisitions based on total number of aviators.

Requisition Format used in Vietnam. In Vietnam, a standard punched card format for requisitioning aviators has recently been implemented. Characteristics pertinent to assignment are arranged in card columns as follows:

<u>Field</u>	<u>Card Columns</u>
1. Branch	2 - 3
2. Grade or rank	4
3. Unit/organization identification	5 - 19
4. Country of assignment	28 - 30
5. Duty MOS	54 - 58
6. Duty position	59 - 60
Type	59
Level	60
7. Requested Reporting Date	61 - 66
Day	61 - 62
Month	63 - 64
Year	65 - 66

<u>Field</u>	<u>Card Columns</u>
8. Security clearance required	72
9. Aviation Qualification Code	72 - 73
Aircraft qualification	72
Instrument certification	73
10. Trailer Card Indicator Code	72

Grade, MOS, and aircraft qualification desired are always specified. Preference by branch is not always given. The Trailer Card Indicator Code (Field 11) indicates the presence of a trailer card for specifying such requirements as general education level, advanced degrees by subject, and school course number. Complete instructions for using this code are found in OPD Memorandum entitled "Officer and Warrant Officer Requisitions," dated 20 March 68.

CAREER PROGRAM FOR AVIATION OFFICERS²

The commissioned Army aviator may be called upon to perform duties both in aviation activities and in his career branch. He must therefore be qualified in both. Normally, assignments are to aviation duties (Category A) for the first three years following graduation from initial entry training. The normal career progression of the career aviation officer is shown in Chart A (condensed from chart in Army Pamphlet 600-3, "Career Planning for Army Commissioned Officers," dated June 1967).

A number of restrictions have been placed on the aviator because of Vietnam requirements. Before the Vietnam conflict, the aviation program permitted a minimum of one year out of every five to be spent in career development assignments and required at least two years of the first ten years to be in branch material assignments. Because of Vietnam requirements, however, these provisions have been suspended for grades below lieutenant colonel. Present policy (OPD-OPXAA Disposition Form, Subject: "Assignment Policy for Aviators," dated 2 April 1968 permits lieutenant colonels also to be removed from Category B assignments to fill aviation assignments as required. Cockpit positions may be filled by officer aviators in any grade below lieutenant colonel.

² A revised career program for warrant officer aviators is in process of being established as part of a general career program for warrant officers. The present discussion applies only to commissioned officers.

CAREER PROGRESSION

Chart B shows the possible career rotation assignments up to the second short tour--usually the second Vietnam tour (Thailand and Korea are also short tour areas, but smaller numbers of aviators are required in those countries). In the chart, the three numbers above each assignment event indicate the minimum, the normal, and the maximum tour length. Estimates of the percentage of outflow from the previous assignment going to a given assignment are indicated when this information is known, but in all cases are approximate and dependent on present manpower policies.

The possible rotational flow shown in Chart B is between broad tour areas. Even though the tours indicated as sources or destinations in any particular tour configuration will usually comprise only a small subset of all possible connections, it was considered useful to provide for the more general case in which any tour could be followed by any other tour, rather than to provide only for the connections of interest in each specific model. If, for an application of the model in simulating a system or in minimizing personnel flows or number of persons required, particular flows are not consistent with the policy portrayed, then the flow may be restricted to zero. This procedure would also permit the use of an optimization algorithm such as the out-of-kilter method employed by Gorham (4) and by Durbin and Wright (5).

The following descriptive paragraphs are numbered to correspond to the numbered events in the flow diagram (Chart B).

1. Initial entry training for both fixed-wing and rotary-wing qualification takes 8 months. For RA officers, the normal one-year minimum troop duty requirement before initial flight training is being shortened by Vietnam needs. For the Infantry Branch, four months is the estimated normal length of troop training preceding initial entry training. Candidates with the required prior service are selected primarily on performance. If they do not have enough prior service, the major selection criterion is score on the Flight Aptitude Selection Tests.

Approximately 80 percent of the applicants selected express preference for fixed-wing aircraft training; but because there are fewer available fixed-wing slots than rotary-wing slots, many must be assigned to rotary-wing training. According to Infantry Branch sources, preference for fixed-wing training can be accommodated in the case of an individual whose score on the FAST-OB is very high (above 300).

The number of aviators given rotary-wing training is limited by the number of aircraft and instructors available. Additional rotary-wing pilots are qualified by cross training for fixed-wing pilots--a much shorter course. Eight percent are lost before graduation from initial entry training.

2, 3. Assignment of about 4 percent of initial entry training graduates to first short tour is delayed for compassionate reasons. Another 1 percent is given turnaround training, either transition training for another aircraft or qualification training for dual rating. While it is

considered desirable that an initial entry graduate have aviation (field) experience before being given additional training, turnaround training in the more complex aircraft may be given to avoid second Vietnam tours for experienced pilots. The schools nominate individuals for the turnaround training on the basis of initial entry course progress. Those chosen are usually in the top 10 to 15 percent of their class.

4, 5. Over 90 percent of initial entry graduates go immediately to Vietnam or Thailand for a 12-month tour; approximately 1 percent go to Korea for a 13-month tour. There is at present a one-year minimum between Vietnam tours.

6. Normally, the advanced branch course is programmed for captains between their fourth and ninth year of commissioned service. Input to advanced branch career school is at present limited to Vietnam returnees. However, no officer can be sent to the advanced course until all short tour and training base tour requirements have been filled. Only those aviators with either Volunteer Indefinite or RA status and a good record of performance are assigned to the advanced course between the fourth and ninth years of their career.

7. A small number (5 percent) may go to other courses such as aircraft qualification courses to obtain a dual rating. Fixed-to-rotary qualification courses had 518 graduates in 1967 and rotary-to-fixed 48. Representatives of all branches mentioned the difficulty they had in achieving dual qualification of their aviators because of more urgent requirements. Only Volunteer Indefinite men are sent for dual qualification. The rotary-to-fixed-wing qualification course is somewhat of a plum which only the top-rated officers can hope for. Only a few requests for civilian (non-military) schools are approved because of Vietnam requirements.

8, 9, 10. Vietnam or other short-tour returnees may also be assigned to other CONUS or long tour overseas positions (mostly in Europe) for a minimum of 12 months. The current average tour in Europe is about 16 months. Most short-tour returnees are assigned to the training base to serve as instructors, staff, and other support personnel at aviation training schools. Assignment to training base is a tour of 18 months for all except non-Vietnam returnees and Vietnam volunteers who may be reassigned after 12 months. Men who have taken the Methods of Instruction course are assigned, whenever possible, to the training base. If an aviator has more than six months service, he may be assigned to the training base.

Reassignment from these tour areas may be directly back to Vietnam or to another short tour area. Personnel may not be assigned to Vietnam unless they have a minimum of six months remaining service. If the OBV-3 aviators change to Volunteer Indefinite status before their obligation is completed, they are usually assigned for a second short tour.

11, 12. Some aviators are assigned to transition or qualification training en route to a short tour to meet the specific qualifications of the positions they are to fill. For example, a rotary-wing pilot who is to fill a slot calling for CH-47 (Chinook) qualification might attend the CH-47 transition course prior to his tour assignment if he is not already qualified in the Chinook aircraft. Career course students may also be given other training en route to a second short tour.

13, 14, 15. Vietnam returnees initially assigned as students may be assigned either to the training base, to a long tour overseas, or to another CONUS assignment.

16 to 20. At these points, there are losses from all remaining OBV-3 personnel who do not elect Volunteer Indefinite status.

21. A person assigned to Vietnam as an individual replacement must have at least 6 months obligated service remaining. If he deploys with a unit, he must have at least three months remaining to serve. Twenty-five percent of aviators in Vietnam are second tour personnel. Department of the Army objective is to attain 25 months between Vietnam tours. At the present time, there are no plans for more than two Vietnam tours. However, a third short tour can be served in Korea. During the second short tour, the grade of major is normally achieved.

Career progress beyond the second short tour is highly dependent on performance of the individual aviator rather than on priority of Army requirements. Consequently, the career path can take many forms--which have not been explored fully enough to permit flow charting. Outstanding personnel may become dual qualified, attend their advanced branch career course, and be given a command position early in their careers. Selection for the Command and General Staff College or Armed Forces Staff College soon after their eighth year of service would prepare them for high staff and Department of the Army positions later. Other possible rotation patterns with associated assignment criteria will be explored during continuing study of the Army aviation system.

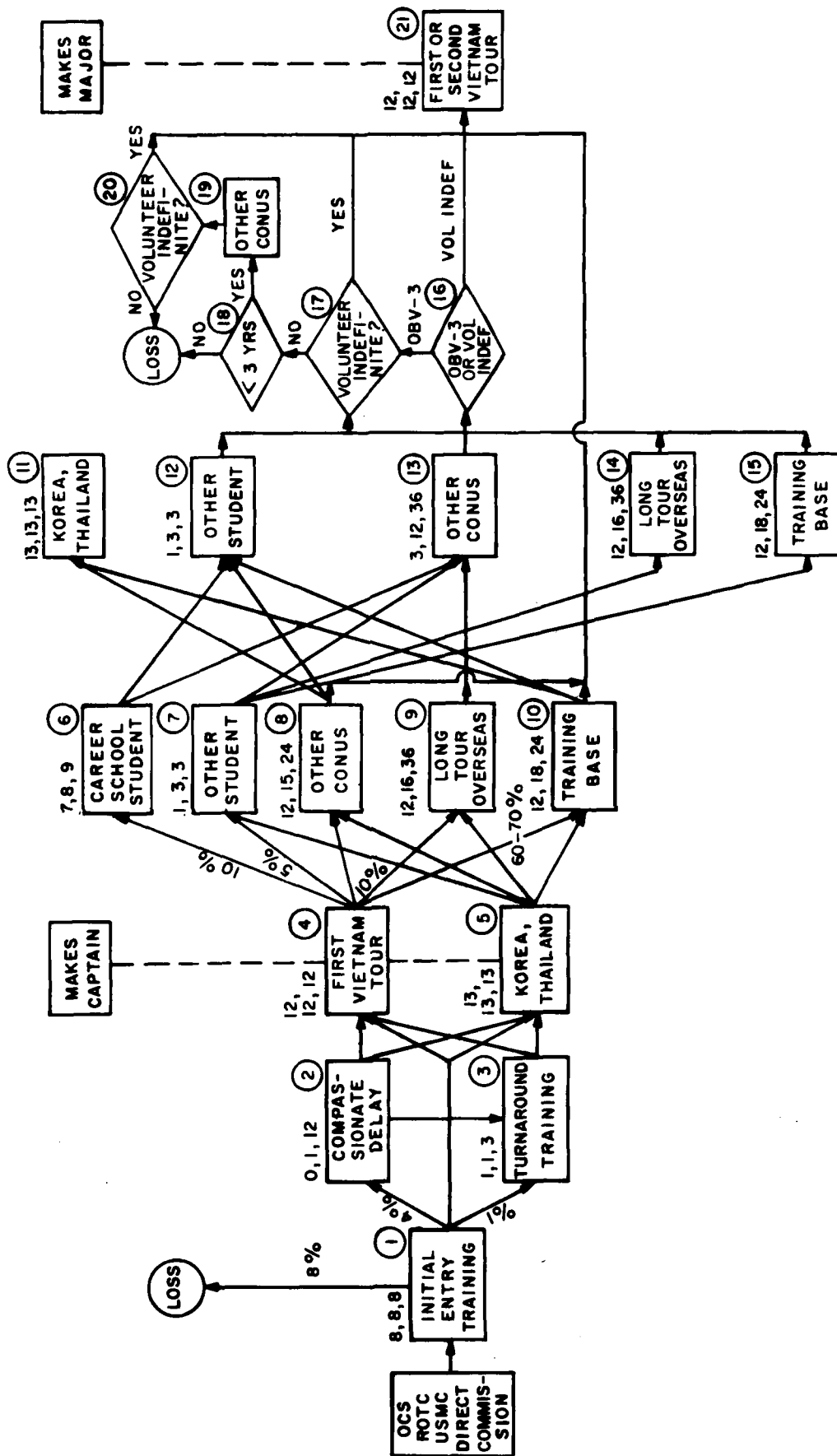


Chart B. Flow chart for personnel in Army Aviation System.

REFERENCES

1. AR 611-10. Personnel Selection and Classification: Selection and Training of Army Aviation Officers, 24 June 1967.
2. AR 601-108. Personnel Procurement: Warrant Officer Flight Training Option, 24 April 1968.
3. AR 611-85. Personnel Selection and Classification: Selection of Enlisted Volunteers for Training as Aviation Warrant Officers, 2 September 1967.
4. Kaplan, Harry. Prediction of Success in Army Aviation Training. BESRL Technical Research Report 1142. June 1965.
5. DA Pamphlet 350-10. Formal Schools Catalog. 1967-68.
6. OPD Memorandum, "Officer and Warrant Officer Requisitions." 20 March 1968.
7. Army Pamphlet 600-3, "Career Planning for Army-Commissioned Officers." June 1967.
8. OPD-OPXAA Disposition Form, Subject: "Assignment Policy for Aviators," 2 April 1968.
9. Gorham, William. An application of a network flow model to personnel planning. Rand Corporation Memorandum. June 1960.
10. Durbin, Edward and Olivia Wright. A model for estimating military personnel rotation base requirements. Rand Corporation Memorandum 5398-PR. October 1967.

MILITARY AND CIVILIAN PERSONNEL INTERVIEWED
IN PREPARATION OF THE PRESENT STUDY

<u>Organization</u>	<u>Name</u>	<u>Topic</u>
OPIN	LTC Robert Arter	Professional Development
DCSPER-P	LTC Richard J. Barbero	Officer Promotion Policies
AFDDPL	LT William Bode	AF Prediction Model
OPAR	LTC Godfrey Crowe	Officer Assignment
OPXAA	MAJ Rudolph DeFrance	Army Aviation
OPAV	LTC George Derrick	Army Aviation
OPXR	Mrs. Anne diZerega	Promotion Model Manning Levels
OPOPP	LT Brian Forst	Liaison
Peat, Marwick & Livingston and Co.	Mr. Harry Gildea	PCS Travel Projection Model
DCSPER	Mr. Charles Goetz	Current Projects
OPIN	LTC Joseph Kastner	Aviator Assignment
DCSPER-CAD	CPT Vello Kuuskraa	PIA Promotion Model
OPXC	LTC Henry Lowder	OPD Briefing
USADSC	Mr. Walter Meehan	ACT II; Promotion Model
OPEN	MAJ David Muntz	Army Aviation
OPXR	MAJ Andrew Nelson	Requisition-Validation
USADC	MAJ John Rafferty	ACT II
Booz-Allen Applied Research, Inc.	Mr. Mike Redgrave	PAMSIM
OPXAA	LTC Delyle Redmond	Army Aviation
OPAR	LTC William Rousse	Aviator Assignment
OPXAA	LTC Billy Rutherford	Army Aviation
OPEN	MAJ Thomas Sands	Army Aviation
OPAT	LTC John Schnibben	Army Aviation
OPIN	LTC Daniel Sharp	Officer Assignment
DATCOM	MAJ Roy Sullivan	PERMACAP
OPAR	LTC Charles Svoboda	Officer Assignment
OPAV	LTC Leo Turner	Army Aviation
OPAT	LTC Samuel Vincent	Army Aviation
DCSPER-S	LTC William Weber	Promotion Model
	LT Robert Kilinski	AF Prediction Model
Computer Sciences Corp.	Dr. Salvatori Zungoli	CAP II Integrated Manpower

APPENDIXES

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B. Flow Chart of Armor Assignment Procedure	21

Appendix A. Related research efforts examined

ASSIGNMENT

1. ACT II. Control and Distribution of Trainees. System for assigning trainees from Basic Training (BCT) to Advanced Individual Training (AIT).

Contractor: Decision Systems Associates, Inc.
11428 Rockville Pike
Rockville, Maryland 20852

Remarks: Since initial assignments largely determine how efficiently manpower resources are utilized, the accomplishment of SIMPO objectives requires an understanding of the current assignment procedures for AIT and on-the-job training (OJT) with the possibility of developing better criteria for predicting AIT and OJT performance.

Documentation:¹ Hatch, Richard S. An Operations Research Solution to Military Personnel Assignment Requirements. Paper presented at the 17th Military Operations Research Symposium, Naval Post Graduate School, Monterey, California. May 25, 1966.

ACT II System-Systems Memorandum-ACRZ-SD. Monthly Reports From Dunnette, Kirchner, and Associates, 1965 and 1966. (Contract No. DA-49-083 OSA-2975). Prepared for Administrative Systems Branch, DA Systems Command, the Adjutant General's Office, DA, September 7, 1966.

2. ACT II Revision. Control and Distribution of Trainees. This revision of the current ACT II system will increase the number and category of personnel controlled, allow for exceeding quotas, improved reports, and provide a better report on unused assets.

Contractor: Decision Systems Associates, Inc.
11428 Rockville Pike
Rockville, Maryland 20852

Remarks: Certain characteristics, such as seasonal fluctuations in the quality and quantity of personnel input, the small percentage of men who actually receive their recommended MOS, the role which this recommended MOS actually plays in the assignment, and the predictive validity of the recommended MOS should be considered by SIMPO in the development of future models.

¹ In all cases, documentation includes only documents which are in the SIMPO Library in BESRL.

3. PLIRS I. Personnel Line Item Requisitioning System. System to establish and maintain status of requirements received from requisitioning commands.

Contractor: Information Systems Operation
General Electric Company
4901 Fairmont Avenue
Bethesda, Maryland 20014

4. CAP I. Centralized Assignment Procedure. System to assign all enlisted personnel (E1 through E6) except trainees.

In-house: Enlisted Systems Analysis
Personnel Data Systems Office
Office of Personnel Operations
Pentagon, Washington, D. C. 20310

5. CAAP II. Computer Assisted Assignment of Personnel. System for providing computer assistance in the assignment of officer personnel.

Contractor: Computer Sciences Corporation (CSC)
8121 Georgia Avenue
Silver Spring, Maryland 20910

Remarks: CSC has done an in-depth analysis of the information flow and decision process for assignment actions and has produced flow charts for an improved systems concept. Results of this analysis provide an adequate beginning framework for initial work toward developing a simulation model of the assignment system. The major areas covered are 1) manning and pre-validation; 2) requisition validation process; 3) Army advanced courses and specialty classes; 4) Command and General Staff College, Armed Forces Staff College; 5) senior service schools; 6) overseas assignment; 7) overseas returnee assignment; and 8) orders issuing.

Documentation: Annex A, Statement of Work. RFQ No. DA HC15 67 Q 0080.
CAAP II Concepts/Techniques Report. (Contract No. DAHC15-67-C-0273) Washington, D. C.

6. CAP III. Centralized Assignment Procedure. Comprehensive system to update CAP I for operation on Random Access Personnel Information Disseminator System (RAPIDS) equipment and to assist in the assignment of all enlisted personnel except trainees.

Contractor: Wolf Research and Development Corporation
4321 Hartwick Road
College Park, Maryland 20740

Remarks: Although there are several small categories of personnel which will not be automated in the CAP III system, it seems to handle the requisition-assignment cycle very adequately. The flow charts of CAP III and the descriptions of the present system (PLIRS I and CAP I) contained in the CAP III document entitled "Techniques/Concepts Development for CAP III System" (1967) serve as useful guides for developing simulation models for accomplishing SIMPO objectives.

Documentation: Annex A, Statement of Work. RFQ NO. DA HC15 67 Q 0082.
29 April 1967.
Techniques/Concepts Developed for CAP III System,
29 September 1967. Wolf Research and Development Corporation,
Bladensburg, Maryland. (Contract No. DA HC15 67 C 0275).
Prepared for Department of Army, Washington, D. C.

FORECASTING

7. White Book. MOS Requirements Forecasting System. System for forecasting enlisted training requirements by four-digit MOS.

Contractor: Federal Systems Division
International Business Machines Corporation
Rockville, Maryland 20852

8. Blue Book. Training Requirements Forecasting System. System for forecasting officer training requirements by MOS and grade.

Contractor: Booz-Allen Applied Research, Inc.
4815 Rugby Avenue
Bethesda, Maryland 20014

Remarks: Since this is a two-year prediction model, it would be desirable to incorporate the model and/or its output into SIMPO. An important feedback loop between CAAP II and Blue Book is indicated. Using the output from CAAP II to establish the initial system status, Blue Book projections will provide estimates for adjustments in training quotas to meet future requirements. CAAP II in turn will be able to update its quotas periodically in accordance with Blue Book output.

Documentation: Annex A, Statement of Work. RFQ No. DAHC15 67 Q 0081.
April 26, 1967.
System Concept for the Officer Training Requirements
Forecast System (Blue Book), 19 October 1967. Charge No.
9004-078. Booz-Allen Applied Research Inc., Washington, D. C.

Blue Book Technical Note 1: Manning Level Distribution
Blue Book Technical Note 2: Promotion Policy
Blue Book Technical Note 3: Responsibility for Training
Blue Book Technical Note 4: Promotion Policy (B)
Blue Book Technical Note 5: Rotation Dates
Blue Book Technical Note 6: Students
Blue Book Technical Note 7: Attrition
Blue Book Technical Note 8: Asset Projection

All Technical Notes were prepared for the
Department of the Army, U.S. Army, Data Support
Command, The Adjutant General's Office,
Washington, D. D. 20310.

9. PCS TVL. PCS Travel Projection System. System to forecast the
number of PCS travel movements by type that will occur by month for 30
months.

Contractor: Peat, Marwick, and Livingston and Co.
1140 Connecticut Avenue
Washington, D. C. 20036

Remarks: Although this system is essentially an accounting routine, it is
based on the strengths, gains, and losses projected by other models. There-
fore, the availability of this routine within the SIMPO library would be
valuable in testing the effects of various policy changes on the PCS moves.

Documentation: Annex A, Statement of Work. RFQ No. DAH15 67 Q 0083, 26 April
1967.
Final Report: PCS Travel Forecasting System, 29 December 1967.
Contract No. DAHC15 67 C 0253. (Peat, Marwick, and Livingston
and Co., Washington, D. C.). Prepared for Army Data Support
Command and Office of Personnel Operations--PCS Travel Section.

10. NEPRS. New Equipment Personnel Requirement Summary. System to col-
lect and evaluate information concerning the personnel implications associated
with new equipment.

Contractor: Systems Development Corporation
5821 Columbia Pike
Falls Church, Virginia 22041

Remarks: The study is designed to provide information necessary to assess the personnel implications associated with new equipment. It covers MOS requirements for officers, warrant officers, and enlisted men. It will provide input for the White Book (enlisted) and the Blue Book (officers). Its importance for the SIMPO library is in the capability it represents of providing a sound basis for making changes in personnel requirements at specific points in time embedded in a prediction model.

Documentation: Annex A, Statement of Work. RFQ No. DA HC15 67 Q 0084
26 April 1967.

11. Promotion Model. Projection of Officer Losses and Promotion.
System for computing and projecting the promotion zones and officer gains and losses each year for a ten-year period.

Contractor: Research Analysis Corporation (RAC)
McLean, Virginia 22101

Remarks: Users have made the following objections to the model: 1) Not all promotion and retirement policies are accurately represented. 2) Many important variables affecting promotions and retention are not employed. 3) The RAC model's parameters could not be changed during a 10-year projection. Nevertheless, the addition of this model to the SIMPO library is expected to be useful in making projections that would otherwise have to be accomplished manually. Experience in using this model should aid in the refinement of future models.

Documentation: Transeau, Leon W. General Description of a Computer Model for Projecting the Impact of Officer Procurement, Promotion, and Retention. Technical Paper RAC TP-246, Contract No. DA44-188-ARO-1. Research Analysis Corporation, McLean, Virginia 22101. February 1967.

Transeau, Leon W. User's Guide to a Computer Model for Projecting the Impact of Officer Procurement, Promotion, and Retention Policies. Technical Paper RAC-TP-286, Contract No. DA 44-188-ARO-1) Research Analysis Corporation. December 1967.

Prepared for Deputy Chief of Staff for Personnel, Department of Army, Washington, D. C.

12. PIA. Development of Techniques for Personnel Inventory Analysis.

System to provide a computerized capability for evaluating proposed force structure in terms of projected personnel assets for each four digit MOS.

Contractor: Research Analysis Corporation
McLean, Virginia 22101

Remarks: A unique feature in PIA will be the generation of alternative policies when the tested policy is infeasible. Steps should be taken to insure the compatibility of PIA and the models within SIMPO that have greater capability for representing rotation policies and membership in nondeployable categories. There is no doubt that the PIA models will be among the more useful simulation models.

Documentation: Development of Techniques for Personnel Inventory Analysis.
RAC. February 1968.

Rubin, A., and Rossen, E. User's Guide to the Personnel Inventory Analysis System, Parts I & II. (Research Analysis Corporation, McLean, Virginia). 1 March 1968.

GENERAL MANAGEMENT

13. TEVAL. Officer and Enlisted Trend Data Evaluator System. System to collect, summarize, monitor, and evaluate changes in designated personnel data to identify trends and rates.

Contractor: B-R Data Systems, Inc.
2121 Industrial Parkway
Silver Spring, Maryland 20904

Remarks: Although SIMPO will not be directly concerned with TEVAL, the trend analyses based on historical data may serve as useful guidelines for management in determining policy alternatives to be tested in the models. Also, the historical data base to be associated with TEVAL may eventually become a means of establishing the predictive validity of various simulation models.

Documentation: Annex A, Statement of Work. RFQ No. DAHC 15 76 Q 0085.

Officer and Enlisted Trend Data Evaluator System Steering Committee Review. B-R Data Systems Inc., Silver Spring, Maryland. 6 October 1967.

Officer and Enlisted Trend Evaluator System Final Report. Part I, General Description. Part II, Technical Description. B-R Data Systems, Inc., Silver Spring, Maryland. 26 October 1967. Submitted to the Department of the Army, Deputy Chief of Staff for Personnel. Contract No. DAHC15 67 C 0257.

14. TOTAL MILITARY PERS SYS. Integrated Army Manpower and Personnel Management System. Advanced data handling system to support a totally integrated manpower and personnel management system.

Contractor: Computer Sciences Corporation
8121 Georgia Avenue
Silver Spring, Maryland 20910

Remarks: This project is concerned primarily with the development of an Army-wide ADP system. Two features are of interest to SIMPO. First, the research includes a detailed survey and documentation of the existing personnel subsystem. Second, the data base is to be in a form compatible with simulation models under development. One disadvantage with respect to its impact on SIMPO I plans is that it is not scheduled for completion until April 1968.

Documentation: Annex A, Statement of Work

15. TOTAL CIVILIAN PERS SYS. Civilian Personnel Management and Manpower Data Reporting System. Improved data handling system that takes advantage of automation to improve efficiency, economy, and responsiveness to information requirements for civilian personnel at all management levels.

Contractor: Computer Command and Control
1750 Pennsylvania Avenue, N. W.
Washington, D. C. 20006

16. MOIDB. Military Occupational Information Data Bank. System to establish a computerized and centrally stored volume of data concerning responsibilities and tasks performed in the field for each military occupational specialty.

Contractor: Operations Research, Inc.
1400 Spring Street
Silver Spring, Maryland 20910

17. PAMSIM. Partial Mobilization Simulation Model. Model for providing computer simulations which will test the partial mobilization plans for personnel.

Contractor: Booz-Allen Applied Research, Inc.
4815 Rugby Avenue
Bethesda, Maryland 20014

Remarks: This model should be incorporated into the SIMPO library in order to evaluate the effects of policy changes on the total asset structure of the Army. It can be a source of manpower information for use in other models.

Documentation: Preliminary Design Considerations for the PAMSIM. Booz-Allen Applied Research, Inc., Bethesda, Maryland. Charge No. 978-1. Contract No. DAHC 19 67 C 006). 20 January 1967.

Partial Mobilization Simulation Model.
Vol. I, Overview of the PAMIM; Vol. II, The PAMSIM Operation Guide; Vol. III, PAMSIM Program Documentation. Contract No. DAHC 19 67 C 006. Booz-Allen Applied Research, Inc., Washington, D. C. 15 March 1968.

PAMSIM Sample Report Sheets--Runs A, B, C. Filling of SRF Requirements From a Sample Pool.
Prepared for U. S. Army Research Office,
Arlington, Virginia 22204

18. RAPIDS SOFTWARE. Random Access Personnel Information Disseminator System. A personnel data retrieval system characterized by direct access capability achieved through remote inquiry devices.

Contractor: Control Data Corporation
11428 Rockville Pike
Rockville, Maryland 20852

19. PERMACAP. Personnel Management and Accounting-Card Processor. A personnel data processing system used by the Army divisions and Personnel Service Companies.

Organization: U. S. Army Data Support Command
The Adjutant General's Office
Washington, D. C. 20310

Remarks: PERMACAP is primarily an automation of a hand processing system, and therefore has little applicability to SIMPO. Combat Service Support System (CS₃) scheduled for field test in June 1968, if accepted, will replace PERMACAP.

Documentation: PERMACAP Briefing Supplement
AR-600-16, Ch 8

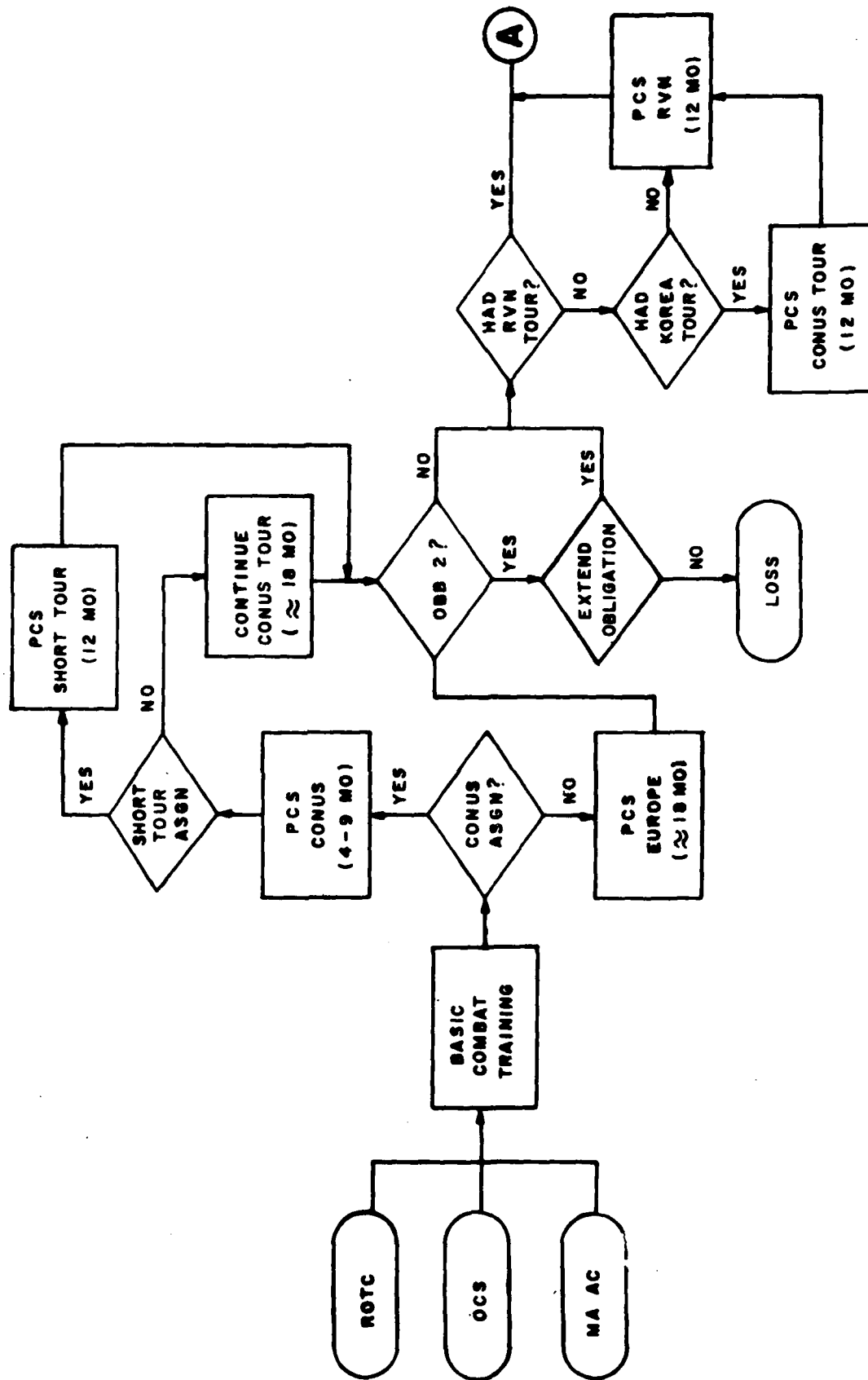
20. CS₃, Combat Service Support System. An automatic data processing system designed to supply logistic as well as administrative data support.

Organization: Headquarters
Automatic Data Field Systems Command
Fort Belvoir, Virginia 22060

Remarks: If the CS₃ field tests beginning in June at Fort Hood, Texas, are successful and CS₃ is adopted, it will replace PERMACAP. Like PERMACAP, CS₃ is an automated paper handling system, and therefore only indirectly related to SIMPO.

Documentation: CS₃ Symposium Report, 21-23 August 1967. U. S. Army
Automatic Data Field Systems Command
Fort Belvoir, Virginia.

Appendix B. Flow chart of Armor assignment procedure (Part 1 of 3 Parts)



Appendix B continued. (Part 2 of 3 Parts)

